

## STATEMENT OF LEGAL AND FACTUAL BASIS

East Tennessee Natural Gas, LLC  
McClure, Dickenson County, Virginia  
Permit No. SWRO11046

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, East Tennessee Natural Gas, LLC has applied for renewal of the Title V Operating Permit for its Compressor Station 3401 facility located at McClure, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

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Date: \_\_\_\_\_

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Date: \_\_\_\_\_

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Date: \_\_\_\_\_

## **FACILITY INFORMATION**

### Permittee

East Tennessee Natural Gas, LLC  
P.O. Box 1642  
Houston, Texas 77251-1642

### Facility

Compressor Station 3401  
2213 Smith Ridge Road  
McClure, Virginia 24269

County-Plant Identification Number: 51-051-00034

## **SOURCE DESCRIPTION**

NAICS Code: 486210 – Booster pumping station, natural gas transportation

Natural gas enters the facility from local production facilities to a set of scrubbers where impurities are separated from the natural gas. The natural gas then goes through the multi-stage gas compressors. From there, the natural gas goes through the dehydration unit and then into the transmission pipeline for distribution to customers along the pipeline system. Two natural gas-fired Cooper-Bessemer, model 8W-330, clean burn, 2 cycle, reciprocating engines (emission unit I.D. S001 and S002) rated at 4,650 hp (34.9 MMBtu/hr) each, are used for natural gas compression. Other equipment at the facility includes: one Taylor Forge triethylene glycol dehydration unit with a 0.95 MMBtu/hr reboiler (S003); one Peerless model 211A8 natural gas-fired boiler (S005) rated at 1.47 MMBtu/hr; and one Cummings model GTA-1710 generator with a natural gas-fired engine (S006) rated at 710 hp. The previously permitted John Zink flare (S004) has been removed from the facility.

The facility is a Title V major source of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO) and formaldehyde, which is a hazardous air pollutant (HAP). This source is located in an attainment area for all pollutants, and is a Prevention of Significant Deterioration minor source. The facility is currently permitted under a minor new source review (NSR) permit issued on May 26, 2009, and a Title V operating permit with an expiration date of September 7, 2011.

## **COMPLIANCE STATUS**

A full compliance evaluation of the facility, including a site visit, was completed on August 25, 2010. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

## EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
<b>Fuel Burning Equipment</b>							
S001	S0011	Reciprocating compressor engine, Cooper-Bessemer, model 8W-330, natural gas-fired	4,650 horsepower	Air/Fuel ratio controller	Not Applicable	NOx, CO and total hydrocarbons	5/26/09
S002	S0021	Reciprocating compressor engine, Cooper-Bessemer, model 8W-330, natural gas-fired	4,650 horsepower	Air/Fuel ratio controller	Not Applicable	NOx, CO and total hydrocarbons	5/26/09
S003	S003	Taylor Forge glycol regeneration boiler, natural gas-fired	950,000 Btu/hr	None	Not Applicable	None	5/26/09
S005	S005	Boiler, Peerless, model 211A8, natural gas-fired, used for comfort heating	1.47 million Btu/hr	None	Not Applicable	None	5/26/09

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
<b>Fuel Burning Equipment</b>							
S006	S006	Generator engine, Cummings, model GTA-1710, natural gas-fired, used for emergency electrical power	710 horsepower	None	Not Applicable	None	5/26/09
<b>Glycol Dehydration Unit</b>							
S003	S003	Taylor Forge dehydration unit	60 million standard cubic feet of gas per day, input	Tornado Technologies, Inc. TTI-DSCVI natural gas-fired thermal oxidizer rated at 1.736 mmBtu/hr	S003-TO	VOC, benzene, toluene, ethyl benzene and xylenes	5/26/09

## EMISSIONS INVENTORY

A copy of the 2009 annual emission update is attached. Emissions are summarized in the following tables.

2009 Actual Emissions

	2009 Criteria Pollutant Emission in Tons/Year				
Emission Unit	VOC	CO	SO <sub>2</sub>	PM-10	NO <sub>x</sub>
S001	13.13	28.45	0.06	5.29	47.05
S002	13.10	28.39	0.06	5.27	46.95
S003	2.17	0.89	0.01	0.08	1.06
S006	0.01	0.73	---	---	0.44
Blowdown	0.26	---	---	---	---
Total	28.67	58.46	0.13	10.64	95.5

2009 Facility Hazardous Air Pollutant Emissions

Pollutant	2009 Hazardous Air Pollutant Emission in Tons/Year
Formaldehyde	12.07
Acrolein	1.70
Methylene Chloride	0.04

## EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment, S001, S002, S003, S005 and S006

### Limitations

The following limitations are State BACT requirements from Conditions 2, 4, 5, 6 and 7 of the minor NSR Permit issued on May 26, 2009:

Condition 2 requires control of NO<sub>x</sub>, CO and total hydrocarbon (THC) emissions from each Cooper-Bessemer compressor engine (S001 and S002) by ignition retard, air manifold temperature reduction and by maintaining an optimum air-to-fuel ratio.

Condition 4 limits the consumption of natural gas by each Cooper-Bessemer compressor engine (S001 and S002) to no more than 34,324 cubic feet per hour and 300,680,000 cubic feet per year.

Condition 5 limits the approved fuel for each Cooper-Bessemer compressor engine (S001 and S002), reboiler (S003), Peerless boiler (S005), and auxiliary generator (S006) to natural gas.

Condition 6 limits emissions from the operation of each Cooper-Bessemer compressor engine (S001 and S002) to the following:

Pollutant	Compressors S001 and S002 (per unit)		Combined Compressor Emissions (Total)	
	lbs/hr	tons/yr	lbs/hr	tons/yr
NO <sub>x</sub>	16.91	74.09	33.82	148.18
CO	15.38	67.35	30.76	134.70
VOC	6.15	26.94	12.30	53.88
PM-10	1.69	7.40	3.38	14.80

Condition 7 limits visible emissions from each Cooper-Bessemer compressor engine exhaust stack (S0011 and S0021) to 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).

As engines modified after June 12, 2006, the following provisions of 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines apply to the Cooper-Bessemer compressor engines:

40 CFR 60.4233(f)(4)(i): Emission standards for NO<sub>x</sub> (3 g/HP-hr), CO (4 g/HP-hr) and VOC (1 g/HP-hr) where the date of manufacture is prior to July 1, 2007 for non-emergency engines with a maximum engine power greater than or equal to 500 HP;

40 CFR 60.4234: Must operate and maintain the engine that achieves the emission standards over the entire life of the engine; and

40 CFR 60.4243(b)(2)(ii): To the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

The emission limits from Condition 6 of the minor NSR permit are more stringent than the applicable emission standards in Subpart JJJJ; therefore, the Subpart JJJJ emission standards are not specifically listed in the Title V permit.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50, Article 1, Standards of Performance For Visible Emissions and Fugitive Dust/Emissions for Visible Emissions

According to 9 VAC 5-50-60 A.1, the provisions of Article 1 apply to each source of visible emissions. 9 VAC 5-50-80 of Article 1 limits discharge into the atmosphere from any affected facility any visible emissions, which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. This opacity limit is included in the Title V permit for the reboiler (S003), Peerless boiler (S005) and generator engine (S006) exhaust stack.

**Monitoring**

The following monitoring requirement is from the minor NSR Permit issued on May 26, 2009:

Condition 2 requires the air-to-fuel ratio to be monitored with an air-to-fuel ratio controller.

The emission control requirements for the Cooper-Bessemer compressor engines will be monitored on a daily basis by recording air manifold pressure and fuel gas pressure for each engine.

As engines modified after June 12, 2006, the following provisions of 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines apply to the Cooper-Bessemer compressor engines:

40 CFR 60.4243(b)(2)(ii): Keep a maintenance plan and records of conducted maintenance; and

40 CFR 60.4243(g): The air-to-fuel controller must be maintained and operated appropriately in order to ensure proper operation of the engine to minimize emissions at all times.

Combustion units firing natural gas and being properly maintained are not expected to violate an SO<sub>2</sub>, PM or opacity emission standard. The permit requires fuel burning equipment (S001, S002, S003, S005, and S006) to burn only natural gas. The fuel requirement will be monitored by recording monthly and annual consumption of natural gas.

Calculations in Attachment A demonstrate that if the Cooper-Bessemer compressor engines (S001 and S002) consume no more natural gas than is permitted, then the emission limits will not be violated. Recordkeeping demonstrating compliance with the natural gas consumption limits can be used to demonstrate compliance with the permitted emission limits.

A review of 40 CFR Part 64, Compliance Assurance Monitoring (CAM) indicates those requirements do not apply to any of the fuel burning equipment, S001, S002, S003, S005, and

S006. Condition 2 of the NSR permit requires control of NO<sub>x</sub>, CO and THC emissions from each Cooper-Bessemer compressor engine (S001 and S002) by ignition retard, air manifold temperature reduction and maintaining an optimum air-to-fuel ratio, each of which prevents pollutants from forming. 40 CFR 64.1 indicates those type measures are considered passive controls and not control devices for the purposes of CAM. Therefore, the engines do not meet the applicability criteria in 40 CFR 64.2 (a)(2). No control devices are associated with the other fuel burning equipment, S003, S005, and S006, and potential emissions from those units are below Title V major source levels. Therefore, S003, S005, and S006 do not meet the applicability criteria in 40 CFR 64.2 (a)(2) or (a)(3).

### **Recordkeeping**

The permit includes requirements for maintaining records of all monitoring and testing required by the permit.

The following recordkeeping requirements are from the minor NSR Permit issued on May 26, 2009:

Condition 9 requires the permittee to maintain daily records of air manifold pressure and fuel gas pressure, and monthly and annual consumption of natural gas for each Cooper-Bessemer engine.

The permittee will be required to maintain records of emission factors and equations used to calculate emissions.

As engines modified after June 12, 2006, the following provisions of 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines apply to the Cooper-Bessemer compressor engines:

40 CFR 60.4243(b)(2)(ii): Keep a maintenance plan and records of conducted maintenance; and

40 CFR 60.4245(a): General recordkeeping requirements.

### **Testing**

The following requirement is from the minor NSR Permit issued on May 26, 2009:

Condition 8 requires the permitted facility to be constructed so as to allow for emissions testing upon reasonable notice at any time using appropriate methods. Test ports shall be provided when requested at the appropriate locations.

As engines modified after June 12, 2006, the following provisions of 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines apply to the Cooper-Bessemer compressor engines:



40 CFR 60.4243(b)(2)(ii): Requires an initial performance test and subsequent performance testing every 8,760 hours of operation or 3 years, whichever comes first, thereafter to demonstrate compliance; and

40 CFR 60.4244: Performance tests must be conducted in accordance with the procedures in paragraphs (a) through (f) of this section.

The initial performance tests required in 40 CFR 60.4243(c) have been completed; therefore, this requirement no longer applies and is not included in the Title V permit.

### **Reporting**

The initial notification of commencement of modification and startup of the Cooper-Bessemer engines as required in condition 10 of the May 26, 2009 minor NSR permit has been completed. Therefore, this requirement no longer applies and is not included in the Title V permit.

As engines modified after June 12, 2006, the following provisions of 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines apply to the Cooper-Bessemer compressor engines:

40 CFR 60.4245(c): Submit an initial notification as required in 40 CFR 60.7(a)(1) including the information in paragraphs (c)(1) through (5) of this section; and

40 CFR 60.4245(d): Submit a copy of each performance test within 60 days after the test has been conducted.

The initial notification required in 40 CFR 60.4245(c) has been completed; therefore, this requirement no longer applies and is not included in the Title V permit.

The reporting requirement in 40 CFR 60.4245(d) is included as part of the performance test requirement in the Title V permit.

There are no specific reporting requirements applicable to the fuel burning equipment, S003, S005, and S006.

### **EMISSION UNIT APPLICABLE REQUIREMENTS - Glycol Dehydration Unit, S003**

#### **Limitations**

As an existing natural gas transmission facility with potential emissions of HAP at major source levels and containing a glycol dehydration unit, 9 VAC 5-60-100, Subpart HHH of Virginia air quality regulations and 40 CFR Part 63, Subpart HHH-National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities apply. The permittee has submitted information in accordance with 40 CFR 63.1274(d)(2) indicating actual average emissions of benzene from the dehydration unit process vents, considering federally

enforceable control requirements, are less than 0.9 megagrams per year. Therefore, in accordance with 40 CFR 63.1274(d), the dehydration unit is exempt from the control, monitoring, recordkeeping and reporting requirements specified in §63.1275. The permittee is required, however, to maintain records of actual average benzene emissions determined in accordance with 40 CFR 63.1282(a)(2).

The following limitations are State BACT requirements from Conditions 3 and 5 of the minor NSR permit issued on May 26, 2009:

Condition 3 requires control of VOC emissions from the Taylor Forge glycol regeneration unit by an air-cooled condenser system. Upon removal of the condenser system, VOC emissions from the glycol regeneration unit shall be controlled by a Tornado Technologies, Inc. natural gas-fired thermal oxidizer, or equivalent.

Condition 5 limits the approved fuel for the Tornado Technologies thermal oxidizer to natural gas.

The thermal oxidizer went online in September 2007; therefore, the air-cooled condenser system requirement no longer applies and is not included in the Title V permit.

The Title V permit contains a condition requiring the permittee to maintain a minimum temperature of 1,500 °F in the thermal oxidizer chamber to ensure effective operation of the oxidizer.

### **Monitoring**

The thermal oxidizer shall be equipped with a device to continuously monitor the temperature in the thermal oxidizer chamber. The temperature monitoring device shall be installed, maintained, calibrated and operated in accordance with the manufacturer's written requirements or recommendations, as a minimum. The temperature monitoring device shall be provided with adequate access for inspection and shall be in operation when the thermal oxidizer is operating.

The temperature in the thermal oxidizer shall be recorded once each hour, at a minimum, when the thermal oxidizer is operating.

### **Recordkeeping**

The permit includes requirements for maintaining records of all monitoring and testing required by the permit.

The permittee will be required to keep hourly records of the thermal oxidizer temperature.

9 VAC 5-60-100, Subpart HHH of Virginia air quality regulations and the following provisions of 40 CFR Part 63, Subpart HHH-National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities apply to the dehydration unit, S003:

40 CFR 63.1284(d)(2): Maintain records of actual average benzene emissions as determined in accordance with 40 CFR 63.1282(a)(2).

### **Testing**

The following requirement is from the minor NSR permit issued on May 26, 2009:

Condition 8 requires the permitted facility to be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided when requested at the appropriate locations.

The permit does not require tests of the glycol dehydration unit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

There are no specific reporting requirements applicable to glycol dehydration unit, S003.

## **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating-permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### **Comments on General Conditions**

#### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 3-2001”.

#### **F. Failure/Malfunction Reporting**

Section 9 VAC 5-120-180 requires malfunction and excess emissions reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to 9 VAC 5-20-180 including Title V facilities. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four day time business hours after discovery of the malfunction.

#### **U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunction that coincide. The reporting

requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on General Condition F.

#### **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

### **STATE-ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5 Chapter 60, Part II, Article 5, Emission Standards for Toxic Pollutants from New and Modified Sources.

### **INAPPLICABLE REQUIREMENTS**

New Source Performance Standard (NSPS) requirements for petroleum liquid storage vessels in 40 CFR Part 60 Subpart Ka and 9 VAC 5-50-410 are not applicable. According to application information, the storage capacity of each petroleum liquid storage vessel at the facility is less than the applicable capacity indicated by the standards.

NSPS requirements for volatile organic liquid storage vessels in 40 CFR Part 60 Subpart Kb and 9 VAC 5-50-410 are not applicable. 40 CFR 60.110b(a) indicates that the subpart applies to each vessel with a capacity greater than or equal to 75 m<sup>3</sup>. Application information indicates there is no tank at the facility with a capacity greater than 12,000 gallons (45.43 m<sup>3</sup>).

NSPS requirements for stationary gas turbines in 40 CFR Part 60 Subpart GG and 9 VAC 5-50-410 are not applicable. There are no gas turbines at the facility.

NSPS requirements for equipment leaks of VOC from onshore natural gas processing plants in 40 CFR Part 60 Subpart KKK and 9 VAC 5-50-410 are not applicable. The facility does not engage in natural gas liquid extraction or fractionation of mixed natural gas liquids and therefore is not a natural gas processing plant as defined in the subpart.

NSPS requirements for onshore natural gas processing: sulfur dioxide emissions in 40 CFR Part 60 Subpart LLL and 9 VAC 5-50-410 are not applicable. The facility does not engage in natural gas sweetening.

NSPS requirements for VOC emissions from synthetic organic chemical manufacturing industry (SOCMI) distillation operations in 40 CFR Part 60 Subpart NNN and SOCMI equipment leaks of VOC in 40 CFR Part 60 Subpart VV and 9 VAC 5-50-410 are not applicable. The dehydration

unit does not produce, as defined in the subparts, any of the listed chemicals as a product, co-product, or intermediate, and is not considered part of the affected industry.

The MACT standards for oil and natural gas production facilities in 40 CFR Part 63 Subpart HH and 9 VAC 5-60-100 are not applicable. The facility does not produce oil or natural gas.

The Cooper Bessemer engines and the Cummings auxiliary engine are subject to the MACT standards for stationary reciprocating internal combustion engines in 40 CFR Part 63 Subpart ZZZZ and 9 VAC 5-60-100; however, there are no requirements applicable to these engines at this time. The Cooper Bessemer engines are existing spark ignition two stroke lean burn engines with a site rating of more than 500 brake HP located at a major source of HAP emissions. In accordance with 40 CFR 63.6590(b)(3)(i), such engines do not have to meet the requirements of the subpart, of Subpart A or initial notification requirements. The Cummings auxiliary generator engine is an existing emergency stationary engine with a site rating of more than 500 brake HP located at a major source of HAP emissions. In accordance with 40 CFR 63.6590(b)(3)(iii), such engines do not have to meet the requirements of the subpart, of Subpart A or initial notification requirements.

The Peerless boiler, S005, and miscellaneous boilers/heaters, 3401-HTRS, are used for comfort/space heat and are not boilers or process heaters as defined in 40 CFR Part 63 Subpart DDDDD; therefore, as indicated in 40 CFR 63.7485, are not boilers or process heaters subject to the subpart. The reboiler and thermal oxidizer are part of the glycol dehydration unit, S003, which is subject to the provisions of 40 CFR Part 63, Subpart HHH – National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities; therefore, as indicated in 40 CFR 63.7491(h), are not subject to the provisions of Subpart DDDDD.

The provisions of 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting require reporting of greenhouse gas (GHG) emissions. The definition of “applicable requirement” in 40 CFR 70.2 and 71.2 does not include requirements such as those included in Part 98, promulgated under Clean Air Act (CAA) section 114(a)(1) and 208. Therefore, the requirements of 40 CFR Part 98 are not applicable under the Title V permitting program.

As a result of several EPA actions regarding GHG under the CAA, emissions of GHG must be addressed for a Title V permit renewed after January 1, 2011. The current state minor NSR permit for the East Tennessee Natural Gas, LLC Compressor Station 3401 facility contains no GHG-specific applicable requirements and there have been no modifications at the facility requiring a PSD permit. Therefore, there are no applicable requirements for the facility specific to GHG.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup> (9 VAC_)	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
3401-HTRS	Boilers/Heaters: Miscellaneous	5-80-720 B and C	NOx, CO, VOC, SO <sub>2</sub> and PM-10	0.53 MMBtu/hr
T002	Storage Tank: Pipeline Liquids (H <sub>2</sub> O)	5-80-720 B	VOC	12,000 gallons
T003	Storage Tank: Oil	5-80-720 B	VOC	7,000 gallons
T004	Storage Tank: Coolant	5-80-720 B	VOC	7,000 gallons
T005	Storage Tank: Oil	5-80-720 B	VOC	3,200 gallons
T006	Storage Tank: Triethylene Glycol (TEG)	5-80-720 B	VOC	3,000 gallons
T007	Storage Tank: Oil	5-80-720 B	VOC	1,000 gallons
T008	Storage Tank: Coolant	5-80-720 B	VOC	1,000 gallons
T010	Storage Tank: TEG	5-80-720 B	VOC	3,000 gallons
T013	Storage Tank: Oil	5-80-720 B and C	VOC	90 gallons
T014	Storage Tank: Oil	5-80-720 B and C	VOC	250 gallons
L001	Truck Loading: Pipeline Liquids (H <sub>2</sub> O)	5-80-720 B	VOC	9,000 gal/hr
L003	Truck Loading: Oil	5-80-720 B	VOC	9,000 gal/hr
L004	Truck Loading: Coolant	5-80-720 B	VOC	8,000 gal/hr

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup> (9 VAC_)	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
L005	Truck Loading: TEG	5-80-720 B	VOC	6,000 gal/hr
PC01	Piping Components: Natural Gas	5-80-720 B	VOC	N/A
PC03	Piping Components: Oil	5-80-720 B	VOC	N/A
PC04	Piping Components: Coolant	5-80-720 B	VOC	N/A
PC05	Piping Components: TEG	5-80-720 B	VOC	N/A
PC06	Piping Components: Pipeline Liquids (H <sub>2</sub> O)	5-80-720 B	VOC	N/A
GR01	Gas Releases: Miscellaneous	5-80-720 A and B	VOC	N/A
PW01	Parts Washer: Remote Reservoir	5-80-720 B	VOC	N/A

<sup>1</sup>The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

## CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## PUBLIC PARTICIPATION

A public notice regarding the draft permit was published in The Dickenson Star newspaper in Clintwood, Virginia on May 25, 2011. A copy of the draft permit and public notice was sent to the EPA by e-mail on May 20, 2011. A copy of the public notice was sent to the affected states,

which include Kentucky, West Virginia and Tennessee, by either postal mail or e-mail as requested no later than May 25, 2011. A copy of the public notice was sent to all persons on the Title V mailing list by either postal mail or e-mail as requested no than later May 25, 2011.

Public comments were accepted from May 26, 2011, through June 24, 2011. No comments were received from the public, affected states or the EPA.



## Attachment A

### Emissions of Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds, Particulate Matter (PM) and PM-10 from the Cooper-Bessemer Compressor Engines

Results of the stack tests conducted in 2010 after modification of the engines and the permitted natural gas consumption limits are used to demonstrate that if the engines consume no more natural gas than is permitted emission limits should not be exceeded. Data from the 2010 stack tests used to calculate emissions are as follows:

	<u>S001</u>	<u>S002</u>
Engine horsepower, HP (average):	4,287	3,870
Fuel Consumption, scfh (average):	27,347	27,194
NOx emissions rate, lb/hr (average):	6.8	10.90
CO emissions rate, lb/hr (average):	9.04	7.0
VOC emissions rate, lb/hr (average):	0.57	0.04

NOx emissions based on permitted fuel consumption are calculated as follows:

$$\begin{aligned}\text{S001: } & (6.8 \text{ lb/hr}) / (27,347 \text{ cf/hr}) = 0.00025 \text{ lb/cf} \\ & (0.00025 \text{ lb/cf})(34,324 \text{ cf/hr}) = 8.58 \text{ lb/hr} \\ & (0.00025 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 37.59 \text{ tons/yr}\end{aligned}$$

$$\begin{aligned}\text{S002: } & (10.9 \text{ lb/hr}) / (27,194 \text{ cf/hr}) = 0.0004 \text{ lb/cf} \\ & (0.0004 \text{ lb/cf})(34,324 \text{ cf/hr}) = 13.73 \text{ lb/hr} \\ & (0.0004 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 60.14 \text{ tons/yr}\end{aligned}$$

CO emissions based on permitted fuel consumption are calculated as follows:

$$\begin{aligned}\text{S001: } & (9.04 \text{ lb/hr}) / (27,347 \text{ cf/hr}) = 0.00033 \text{ lb/cf} \\ & (0.00033 \text{ lb/cf})(34,324 \text{ cf/hr}) = 11.33 \text{ lb/hr} \\ & (0.00033 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 49.61 \text{ tons/yr}\end{aligned}$$

$$\begin{aligned}\text{S002: } & (7.0 \text{ lb/hr}) / (27,194 \text{ cf/hr}) = 0.00026 \text{ lb/cf} \\ & (0.00026 \text{ lb/cf})(34,324 \text{ cf/hr}) = 8.92 \text{ lb/hr} \\ & (0.00026 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 39.09 \text{ tons/yr}\end{aligned}$$

VOC emissions based on permitted fuel consumption are calculated as follows:

$$\begin{aligned}\text{S001: } & (0.57 \text{ lb/hr}) / (27,347 \text{ cf/hr}) = 0.00002 \text{ lb/cf} \\ & (0.00002 \text{ lb/cf})(34,324 \text{ cf/hr}) = 0.69 \text{ lb/hr} \\ & (0.00002 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 3.01 \text{ tons/yr} \\ \text{S002: } & (0.04 \text{ lb/hr}) / (27,194 \text{ cf/hr}) = 0.000002 \text{ lb/cf}\end{aligned}$$

$$(0.000002 \text{ lb/cf})(34,324 \text{ cf/hr}) = 0.07 \text{ lb/hr}$$

$$(0.000002 \text{ lb/cf})(300,680,000 \text{ cf/yr})(1 \text{ ton}/2000 \text{ lb}) = 0.3 \text{ ton/yr}$$

There are no stack test data for PM emissions from the engines; therefore, emission factors from the current version of AP-42 are used. The current AP-42 PM emission factor for 2-stroke lean burn reciprocating natural gas engines is  $3.84 \times 10^{-2}$  lbs/mmBtu (filterable) +  $9.91 \times 10^{-3}$  lbs/mmBtu ( $4.831 \times 10^{-2}$  combined). PM-10 emissions based on maximum heat input for each engine are calculated as follows:

$$(34.9 \text{ mmBtu/hr})(0.04831 \text{ lb/mmBtu}) = 1.69 \text{ lb/hr}$$

$$(1.69 \text{ lb/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 7.40 \text{ tons/yr}$$